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(54) **FACE RECONSTRUCTION FROM A LEARNED EMBEDDING**

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See application file for complete search history.

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(57) **ABSTRACT**

The present disclosure provides systems and methods that perform face reconstruction based on an image of a face. In particular, one example system of the present disclosure combines a machine-learned image recognition model with a face modeler that uses a morphable model of a human's facial appearance. The image recognition model can be a deep learning model that generates an embedding in response to receipt of an image (e.g., an uncontrolled image of a face). The example system can further include a small, lightweight, translation model structurally positioned between the image recognition model and the face modeler. The translation model can be a machine-learned model that is trained to receive the embedding generated by the image recognition model and, in response, output a plurality of facial modeling parameter values usable by the face modeler to generate a model of the face.

15 Claims, 9 Drawing Sheets